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gel. The necessary vacuum is produced with a forepump. Before the beginning of work all volumes are evacuated, then filled with inert gas and again evacuated. The containers with the absorbers are then heated to 200 - 250°C (silica gel) and 150 - 200°C (Na+K). Through a number of valves the gas comes first into a stock bin, then into a pressure-reducing valve and finally into the containers filled with the absorbers. The passing amount of gas is measured by means of a rotation flux meter. The purified gas is stored in a gas bottle. The regeneration of the consumed (oxidized) coppered silica gel is carried out by means of hydrogen stored in a steel bottle which passes a pressure-reducing valve and a rotation meter and then enters the steel container 1. Hydrogen consumption is in this case about 40 l per hour. After the first cylindrical container is filled with hydrogen during 10 minutes the heating coil of this device is switched on. At 250 - 300°C an intense reduction of copper oxide starts. The regeneration process must start when approximately 200 m^3 gas are purified. It takes approximately 8 hours. For the determination of small amounts of oxygen in the gas the well-known colorimetric method was used (color

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change of a copper solution containing ammonia). About 15 - 20 minutes are necessary for determining the oxygen content. In this case an accuracy of 10^{-5}% can be attained. The different working conditions to obtain maximum efficiency were investigated and the observed dependence of gas purity on the rate of flow of the gas and on the temperature of the absorber is graphically represented. From this it may be seen e.g. that at a consumption of 60 l argon/h the oxygen content is 0.0003 per cent by volume in the purified gas. The purification of nitrogen at the same amount of flow reduces the oxygen content of nitrogen to 0.003 per cent by volume. There are 3 figures and 2 Soviet references.

SUBMITTED: June 21, 1958

Card 3/3

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83142

S/170/60/003/006/005/011
B013/B067

11.4140

AUTHORS: Grachev, N. S., Kirillov, P. L.

TITLE: Experimental Determination of the Elasticity of Potassium Vapors at Temperatures of 550 - 1280°C

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 6, pp. 62 - 65

TEXT: The apparatus schematically shown in Fig. 1 was used to determine the elasticity of potassium vapors between 550 and 1280°C. The vapor pressure was measured by means of a compensating manometer with a sensitivity of 1 mm torr. The results of experimental series with 203 measurements are shown in a diagram (Fig. 2). All experiments were in good agreement within the accuracy of measurement. For comparison, data from Ref. 2 are also plotted. The results obtained by the authors are lower than those of Ref. 2. At 1280°C the divergence is 20%. This divergence could not be explained. The equation $\log P_s = -\frac{4970}{T} - 0.5 \log T + 6.160$

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83142

Experimental Determination of the Elasticity of Potassium Vapors at Temperatures of 550-1280°C

S/170/60/003/006/005/011
B013/B067

gives an approximation of the measured values of the elasticity of potassium vapors with an accuracy of up to 2%. P_s - pressure in ata; T - temperature in °K. There are 2 figures and 3 references: 1 Soviet.

4

Card 2/2

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, N.V.; KOZHEVNIKOV, I.I.

Boundary layers of the Cretaceous and Paleogene systems of the northern Caspian Sea region. Trudy SGPK no.2:183-192 '61.
(MIRA 14:11)
(Caspian Sea region--Paleontology, Stratigraphic)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, P.I.

Reconditioning the teeth of standard levers of a ST-35 apparatus. Vest.sviazi 14 no.4:30 Ap '54. (MLRA 7:6)

1. Glavnyy inzhener Chelyabinskogo tsentral'nogo telegrafa.
(Telegraph--Apparatus and supplies)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, R.I.; DZHUMAGALIYEV, T.N.

Geological structure of the eastern part of the Ural-Volga interfluve. Trudy Inst. nefti AN Kazakh. SSR no.1:5-16 '56. (MLRA 10:4)
(Ural Valley--Geology) (Volga Valley--Geology)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, R.I.

ANTONOV, K.V.; AYZENSHTADT, G.Ye.; GRACHEV, R.I.; DZUMAGALIYEV, T.N.; KOLTYPIN, S.N.

"Oil-bearing strata of the Emba region and the origin of oil pools." N.M.Chukeev. Reviewed by K.V.Antonov and others. Neft.khoz. 34 no.8:65 Ag '56. (MLRA 9:10)
(Emba region--Petroleum geology) (Chukeev, N.M.)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

AUTHOR GRACHEV R.I., DONSKOVA G.M., RYGINA P.T. 20-2-49/67

TITLE New data on the stratigraphy and Distribution of callovian and oxfordian deposits upon the territory of the near-Caspian depression.- (Novyye dannyye o stratigrafii i rasprostranenii otlozheniy kelloveya i oksforda na territorii Prikaspiyskoy vpadiny,- Russian)

PERIODICAL Doklady Akademii Nauk SSSR 1957, Vol 113, Nr 2, pp 418-420

ABSTRACT On a large area of the Caspian depression below the marine layers of the lower Volga-deposit there lies an immense (400-600 m), even mass alternatingly consisting of loam, sand, limestone, and sometimes coal. Till recently any fauna was refused to this layer, except for single Lingula sp. and Pseudomonotis sp. The plant-remains were determined as "middle jurassic" in a wider sense. For this reason this sediment mass was classified into the middle jurassic and the mainland: to the coastal zone of the sea and the swampy mainland. By the investgation of these layers the authors obviously could ascertain in their series sediments of the shallow sea, especially of the Callovian and Oxfordian deposits. In the extreme Sotheast of the Emba-region there is on authentic middle jurassic a deposit of a rock layer mainly consisting of loam with thin intermediate layers of limestone, without any lime at the bottom, with a few plant-remains: higher up

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New data on the stratigraphy and Distribution of callovian and oxfordian deposits upon the territory of the near-Caspian depression.

it becomes slightly ordnaceous in parts. According to the fose sil determinations this mass doubtlessly have to be classified among the Callovian deposits. Its thickness is 110 m. Grey, sometimes slightly ordnaceous, sandy loam with thin intermediate layers of loamy marl and a fauna of the Oxfordian deposit, lies on it with a thickness of 30 m. In the Aznagul-area below the lower Volga deposit in the upper part (formerly classified among the middle jurassic), sediments of all three stages of the mentioned deposits were discovered. They lay on authentic Bath-deposit sediments and are constructed alternatingly of limestone, loam with carbonized vegetabilic detritus, and slightly loamy marls. Lithologically they are identical with Bath and Callovy. Besides the fauna component mentioned by name, a characteristic pollen complex was found here, which does not reach down into the Bath and Bayos. Chiefly sackless pollen of the conventional-famyli Aggerella can be found here with two new kinds. The Callovian deposit is about 112 m thick. It is covered by the loam of the Oxfordian deposit (22 m thick) here, too. In the wewtern part of the depression, between the rivers Ural and Volga, several

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20-2-49/67

New data on the stratigraphy and Distribution of callovian and oxfordian deposits upon the territory of the near-Caspian depression.

drillings in Aukitaychagyl (Novokazanka) were investigated. Here, too, the upper part of the cross-section (formerly regarded as middle jurassic) contains Callovian and Oxfordian sediments. On the Bath lies without noticeable interruption a packet of loam cretaceous in its upper part, 120 m thick, with a number of fossils, which are characteristic of the central and the lower Volga-region. Here the spore- and pollen-complex still appears, which is lacking further down and is mainly represented by new representatives of 6 conventional families. In the Oxfordian deposit here alternatingly sand-cretaceous-loams with marls occur, which contain carbonized plant detritus and pyrite crystals. Foraminiferes typical for the Oxfordian depositi are found. They are 35 m thick. In the central part of the Emba-region the upper horizons under the lower Volga-deposit are represented by sediments from shallow water, which have no marine fauna. Spore- and pollencomplex is of typical Callovian kind. The Callovian and

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20-2-49/67

New data on the stratigraphy and Distribution of callovian and oxfordian deposits upon the territory of the near-Caspian depression.

Oxfordian deposits can easily be sorted out.on diagrams by electrocarrottage. They are present in many summits of the region. Thus the existing of Callovian and Oxfordian deposits is demonstrated for the whole Embadistrict, except for the part of the salt-summits, which at that time had their most active period of development- However, at their peripheral parts of the summits they did not suffer any erosion. It can be maintained that the accumulation of sediments of this age occurred in the whole Caspian-depression. In a number of papers a new kind of plateau is shown in the central part of the Emba-region (Zhilokosinskoye, Tanatar- or Makat-elevation). Its presence explains the occurrence of the Callovian and Oxfordian deposit in the most shallow facies, which are the nearest to the continental ones, without any marina fauna, however with a typical spore- and pollen-complex, which is clearly distinguished from that one of the Bath deposit.
(8 citations from Slavic publications)

CARD 4/5

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

20-2-49/67

New data on the stratigraphy and Distribution of callovian and oxfordian deposits upon the territory of the near-Caspian depression.

[redacted]

ASSOCIATION: Central Scientific Research Laboratory of the Kazakhstanneft' (Kazakhstian-mineral oil)
PRESENTED BY: N.M. STRAKHOV, Member of the Academy
SUBMITTED: 20.1. 1956
AVAILABLE: Library of Congress.

CARD 5/5

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, R.I.

Oil and gas potentials in the Ural-Volga interfluvial area.
Trudy Inst. nefti AN Kazakh. SSR 2:16-26 '58. (MIRA 11:8)
(Volga Valley--Petroleum geology)
(Volga Valley--Gas, Natural--Geology)
(Ural Valley--Petroleum geology)
(Ural Valley--Gas, Natural--Geology)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, R.I.

Structure and development of the southern Emba upland. Trudy VNIGRI no.131:215-265 '59. (MIRA 12:9)
(Emba region--Geology)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

IVANCHUK, P.K.; KOZLOV, I.G.; GRACHEV, R.I.

Geological results of exploratory drilling in the U.S.S.R. for the period 1947-1957. Trudy VNIGRI no.132:100-111 '59. (MIRA 17:1)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, R.I.

Principal methodological plan of prospecting for oil and gas pools in the West Siberian Plain. Trudy VNIGRI no.220. Geol. sbor. no.8:320-326 '63. (MIRA 17:3)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

BOYARSKIKH, G.K.; GRACHEV, R.I.; MIRONOV, Yu.K.

Method of prospecting for possible zones of oil and gas accumulation in the West Siberian Plain. Trudy VNIGRI no.220. Geol. sbor. no.8:327-344 '63. (MIRA 17:3)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, Rostislav Ivanovich; BROYTMAN, Roman Yakovlevich; VERESHCHAKO, Igor' Aleksandrovich; ROZENBERG, Nikolay Mikhaylovich; LEYBSON, M.G., nauchnyy red.; GINTSBURG, V.I., vedushchiy red.

[Determining the efficiency of geological prospecting; methodological instructions]. Opredelenie effektivnosti geologorazvedochnykh rabot; metodicheskie ukazaniia. Leningrad, Nedra, 1964. 84 p. (Leningrad. Vsesoiuznyi neftiano' nauchno-issledovatel'skii geologorazvedochnyi institut. Trudy, no. 229) (MIRA 17:6)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, R.I.; ANSIMOV, V.V.; BOYARSKIKH, G.K.; VERESHCHAKO, I.A.; MIN'KO, V.A.; MIRONOV, Yu.K.; SMIRNOV, V.G.; SHAMES, D.Z.; IONINA, I.N., vedushchiy red; CHOCHIA, N.G., red.

[Geological and economic efficiency in prospecting for oil and gas in the West Siberian Plain.] Geologo-ekonomicheskaia effektivnost' geologopoiskovykh i razvedochnykh rabot na neft' i gaz v Zapadno-Sibirskoi nizmennosti. Leningrad, Gostoptekhizdat, 1963. 199 p. map (insert. Leningrad. Vsesoiuznyi i neftianoi nauchno-issledovatel'skii geologorazvedochnyi institut. Trudy, no.206). (MIRA 17:10)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, S.

The role of trade-union organizations in perfecting the Soviet apparatus. Sov.profsoiuzy 3 no.2:32-35 F '55. (MLRA 8:4)

1. Predsedatel' Moskovskogo obkoma profsoyuza rabotnikov gosuchrezhdeniy.
(Trade unions) (Russia--Politics and government)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, S., inzh.-podpolkovnik.

Done in a tank repair workshop. Tankist no.3:50-51 Mr '58.
(Tanks (Military science)--Maintenance and repair) (MIRA 11:5)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, S.

Closer to the economic work of financial organs. Fin.SSSR 23 no.11:75-77 N '62. (MIRA 15:12)

1. Predsedatel' Moskovskogo gorodskogo komiteta professional'nogo soyuza rabotnikov gosudarstvennykh uchrezhdeniy.
(Moscow--Finance) (Moscow--Auditing and inspection)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, S.

The movement for the communist attitude toward labor is expanding. Fin.SSSR 37 no.3:63-67 Mr '63. (MIRA 16:4)

1. Predsedatel' Moskovskogo gorodskogo komiteta professional'nogo soyuza rabotnikov gosudarstvennykh uchrezhdeniy.
(Moscow--Financial employers) (Socialist competition)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, S. A., MURIN, A. N., NEFEDOV, V. P., ZAYTSEV, V. M. (USSR)

"Use of Chemical Changes Accompanying Processes of Beta-Decay of RaE for the Synthesis of Organic Compounds of Polonium".

paper submitted for the Symposium on the Chemical Effects of Nuclear Transformation (IAEA) Prague, 24-27 Oct. 1960.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

NEFEDOV, V.D.; GRACHEV, S.A.

Paper chromatographic study of the chemical forms of RaE formed in the β-decay of RaD. Radiokhimiia 2 no.4:464-469 '60.
(MIRA 13:9)

(Lead--Isotopes) (Bismuth--Isotopes)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

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B011/B003

AUTHORS: Murin, A. N., Nefedov, V. D., Zaytsev, V. M., Grachev, S.A.

TITLE: Synthesis of Elemental-organic Compounds of Polonium by Using Chemical Changes Taking Place During the Processes of Beta Decay of RaE

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 1, pp. 123 - 125

TEXT: The ability of the elements polonium, francium, and astatine to form elemental-organic compounds is a result of their position in the periodic system and of a general law discovered by D. I. Mendeleyev. This law was newly formulated by Academician A. N. Nesmeyanov (Refs. 1 and 2). The present paper describes the development of new methods of synthesizing the compounds mentioned in the title, which had been unknown so far. The method based on the utilization of chemical changes occurring during β-decay might be useful in this case (Refs. 7-11 for bismuth). The authors prove that the said polonium compounds (RaF) are formed by β-decay of RaE. RaE is a component of several aromatic

Card 1/4

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

Synthesis of Elemental-organic Compounds of Polonium by Using Chemical Changes Taking Place During the Processes of Beta Decay of RaE

CCl_4 (without treatment of the paper): R_f: $TePh_3Cl \sim 0$; $TePh_2Cl_2$ 0.6 - 0.7; $TePh_2 \sim 1$. Fig. 2 shows the distribution of the α-activity among various chemical modifications of polonium on accumulation in $Bi(RaE)Ph_3$ crystals: $PoPh_2Cl_2$ 15±6%; $PoPh_2$ 24±6%, and the sum of the remaining Po derivatives was 61±6%. Data are also given for CCl_4 and petroleum ether. Fig. 3 shows the results of chromatographing in ethyl acetate (R_f = 0.54). It may be seen that the chemical state has a strong effect on the yields of various RaF forms. This makes it possible to utilize chemical changes occurring in β-decay for the synthesis of the Po compounds mentioned in the title. The authors thank G. A. Razuvayev, Corresponding Member of the AS USSR, and B. K. Preobrazhenskiy for their advice. There are 3 figures and 15 references: 9 Soviet, 1 American, 4 German, and 1 Chinese.

Card 3/4

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

23805
S/186/61/003/001/020/020
A051/A129

AUTHORS: Grachev, S.A., Mel'nikov, V.N., Ryukhin, Yu.A., Toropova, M.A.

TITLE: Separation of Cd^{109} without a carrier from a cyclotron target

PERIODICAL: Radiokhimiya, v 3, no 1, 1961, 116-118

TEXT: The radioactive isotope Cd^{109} is formed when irradiating silver in a cyclotron according to the reaction: $Ag^{109}(d, 2n) Cd^{109}$. The Cd^{109} decays by K-capture with a half-life of 470 days. The energy of the monochromatic gamma-emission E = 87 kev. In addition to Cd^{109} the long-lived isotope of silver Ag^{110m} (T=270 days) is also formed according to the reaction $Ag^{109}(d,p)Ag^{110m}$. The problem of separating Cd^{109} without a carrier is reduced to the separation of micro-quantities of Cd from larger quantities of silver and copper. Reference is made to certain other methods of Cd separation from silver, such as the thiocyanate method (Ref 1), the ditison method (Refs 2-4), the diethylcarbamate method (Ref 5), and it is pointed out that all these methods are unsuitable for the separation of Cd^{109} without a

Card 1/5

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

Separation of Cd^{109} without a carrier ...

carrier in the presence of very large quantities of copper and silver. The authors recommend the following method of Cd^{109} separation without a carrier: The target on which the silver was placed was submerged into concentrated nitric acid and the silver layer was dissolved. After washing the target with distilled water, the combined solutions (nitric acid and aqueous) were transferred to a triple-mouth flask (Fig 1). The solution was heated. The silver iodide and copper semi-iodide were precipitated by adding a 10% solution of HI, while mixing. The solution was separated from the precipitate through a porous quartzite filter with a pore size of 20-35 μ into a separating funnel. The precipitate was washed 2-3 times with a 1% solution of HI, after which the solution was poured into a quartzite container through the lower tap of the separating funnel and was evaporated until dry. The precipitate was processed twice with distilled concentrated HCl with subsequent evaporating until dry, and was dissolved in 10 ml of 2n HCl. The further purification of Cd^{109} from copper and traces of silver was conducted by using an ion-exchange column. The column with a diameter of 10 mm and a length of 70 mm was submerged in AB-17 (AB-17) resin with a grain size of 50-100 μ. The resin was washed eliminating iron and transferred to a Cl-con-

Card 2/5

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Separation of Cd^{109} without a carrier ...

tainer. The initial solution was passed through a column at a rate of 0.15 ml per minute. Then the column was rinsed with 70-80 ml of 2 n HCl, whereby traces of copper were removed. Cd^{109} was evaporated to the required volume. The radiochemical purity of the obtained sample was checked by taking the gamma-spectrum using a scintillation gamma-spectrometer with automatic registering of the gamma spectra. A NaI crystal was used as the scintillator, having a counting efficiency of the gamma quanta with a 100 kev energy equalling 18%. Fig 2 shows the gamma-spectrum of the initial nitric acid solution containing Cd^{109} and Ag^{110m}. The 87 kev energy peaks belong to Cd^{109}, and the 447, 883, 936 and 1382 kev peaks belong to Ag^{110m}. Fig 3 is the gamma-spectrum of the AgI precipitate. The gamma-spectrum of the Cd^{109} sample formed without a carrier is shown in Fig 4. The presence of the only line with an energy of 87 kev in the spectrum indicates the radiochemical purity of the Cd^{109} sample obtained. The integral change of the activity of all the gamma-lines with an energy over 100 kev proved that the radioactive contaminations of the sample are much below 0.1%. There are 3 graphs, 1 diagram and 7 references: 3 Soviet-bloc, 4 non-Soviet-bloc.

Card 3/5

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

23003
S/186/61/003/002/015/018
E111/E452

24.6720 (1482, 1563, 1138)

AUTHORS: Nefedov, V.D., Vykhovtsev, V.L., Chi-Lan, Wu and Grachev, S.A.

TITLE: Chemical changes occurring in β-decay of RaD which is part of the composition of radical-deficient derivatives of lead

PERIODICAL: Radiokhimiya, 1961, Vol.3, No.2, pp.225-228

TEXT: The authors note the complicated nature of changes occurring in the β-decay of the central atom of organic derivatives of lead. It was shown (Ref.1: V.D.Nefedov, V.I.Andreyev, ZhFKh, 31, 3, 563 (1957) and Ref.2: V.D.Nefedov, M.P.Bel'dy, ZhFKh, 31, 5, 986 (1957)) that with excess-radical and radical equivalent phenyl derivatives of RaD and ThB the bismuth isotopes produced on their decay can form a whole series of compounds. Their origin is complex and can be primary (due to rearrangement of the original molecule in β-decay processes not accompanied by internal conversion), secondary (due to recombination of fragments produced in β-decay processes accompanied by internal conversion) or tertiary (due to redistribution of daughter elements between compounds due to

Card 1/4

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Chemical changes ...

chemical processes during analysis). It is difficult to establish the participation of adjacent molecules in some of the changes taking place. A possible way of solving this important problem is to study the chemical state of daughter atoms produced in the decomposition of radical-deficient lead derivatives (i.e. compounds whose molecules contain insufficient radicals to form the highest organic derivatives of bismuth, e.g. $PbPh_2Cl_2$). If appreciable quantities of such organic bismuth derivatives appear in the decomposition products, this would indicate that neighbouring molecules participate, and conversely. The problem is thus to compare the quantities of complete organic bismuth derivatives formed in the decomposition of, on the one hand, radical-equivalent and radical-surplus and, on the other hand, radical-deficient derivatives. The authors studied this with RaDPh, $RaDPh_3Cl$ and $RaDPh_2Cl_2$. They used the isotope-carriers method (described in Ref.1 and 2) to study first the compounds of RaE formed during accumulation in crystals of $RaDPh_4$ and $RaDPh_3Cl$. The proportion of RaE existing as $RaEPh_3$ was determined by the precipitation and by the solvent-removal methods. In the first, the $Pb(RaD)Ph_3Cl$ or

Card 2/4

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Chemical changes ...

$Pb(RaD)Ph_4$ was dissolved in 15 ml of pyridine containing about 400 mg $BiPh_3$ and 5 ml of $BiPh_3Cl_2$. The precipitate obtained on adding 30 ml of distilled water was filtered off and washed with water and then with two 10 ml portions of alcohol. After drying ether extraction was effected, the extract being filtered and evaporated. The $Bi(RaE)Ph_3$ residue was purified by recrystallization. In the solvent removal method, about 35 mg of $Pb(RaD)Ph_3Cl$ or $Pb(RaD)Ph_4$ was dissolved as before, but the pyridine was removed by a stream of cold air; the residue was extracted with ether, the $Bi(RaE)Ph_3$ obtained after removal of ether being purified as before. Similar procedure was used for RaE existing as $RaEPh_3Cl_2$. The two methods were also used for RaE compounds formed on accumulation in crystals of $Pb(RaD)Ph_2Cl_2$, but here warm pyridine was used. Special experiments showed that among the causes of discrepancies between the result of the two methods are tertiary changes. The results show that chemical changes in β-decay of the central atom (RaD) in element-organic derivatives of lead $RaDPh_4$, $RaDPh_3Cl$ and $RaDPh_2Cl_2$ do not draw in surrounding molecules. Acknowledgments are expressed to A.N.Murin who made valuable suggestions on this work. There are

Card 3/4

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23003

S/186/61/003/002/015/018
E111/E452

Chemical changes ...

2 tables and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English language publication reads as follows: R.R.Edwards, J.M.Day, R.E.Overman, J.Chem.Phys., 21, 9, 1555 (1953).

SUBMITTED: October 16, 1959

Card 4/4

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

NEFEDOV, V.D.; GRACHEV, S.A.; GRANT, Z.A.

Separation of p-tolyl derivatives of tellurium by paper chromatography. Zhur.ob.khim. 32 no.4:1179-1182 Ap '62. (MIRA 15:4)

1. Leningradskiy gosudarstvennyy universitet.
(Tellurium--Analysis) (Paper chromatography)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

S/079/63/033/001/001/023
D403/D307

AUTHORS: Nefedov, V. D., Toropova, M. A., Grachev, S. A., and Grant, Z. A.

TITLE: Chemical changes during the ß-disintegration of RaE and their utilization for the synthesis of p-tolyl derivatives of polonium

PERIODICAL: Zhurnal obshchey khimii, v. 33, no. 1, 1963, 15-18

TEXT: A discussion is first given of the possibility of using the chemical changes occurring during the disintegration of RaE compoundsm particularly aromatic organometallics, for the synthesis of Po derivatives, proposing that the nature of the parent molecule should exert a strong effect on the character of chemical changes during the ß-disintegration. Confirmation of this proposition and application of the above chemical changes to synthesis of the organometallic compounds of Po, At, Fr, etc. were the chief objects of this work. The compounds studied were $Bi(RaE)Tol_3$ and $Bi(RaE)Tol_3Cl_2$, where Tol=tolyl, using paper chromatography to separate

Card 1/2

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Chemical changes during ...

and identify the Po derivatives formed. Analogous Te compounds were used as carriers for the Po derivatives. The best eluents were found to be MeOH-H_2O and $(CH_3)_2CO$-MeOH-H_2O, taken respectively in the proportions of 3:1 and 4:3:2 by volume. The following new compounds were found: Po(p-Tol)$_2$, (p-Tol)$_2$PoCl$_2$, (p-Tol)PoCl$_3$ and (p-Tol)$_3$PoCl, as well as some inorganic Po. The relative proportions of these products confirmed that the nature and properties of the parent compound strongly affect the chemical changes. The advice and assistance of G. A. Razuvayev and A.N. Murin is acknowledged. There are 3 figures and 2 tables.

SUBMITTED: February 26, 1962

Card 2/2

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

S/079/63/033/002/001/009
D403/D307

AUTHORS: Nefedov, V.D., Grachev, S.A. and Gluvka, S.

TITLE: Study of chemical changes occurring during the β - disintegration of RaE contained in its naphthyl derivatives

PERIODICAL: Zhurnal obshchey khimii, v. 33, no. 2, 1963, 333 - 339

TEXT: Continuation of earlier studies (DAN SSSR, 133, 123 (1960); ZhOKh, 33, 15 (1963)) which showed that consequences of β - disintegration may be used to initiate hitherto unknown synthetic methods. Po was accumulated in $(\alpha - C_{10}H_7)_5$ Bi(RaE) and $(\alpha - C_{10}H_7)_3$ Bi(RaE)Cl_2, which were irradiated with neutrons at a flux of 10^4 n/sec. cm^2, and the products were separated by paper chromatography, using the corresponding Te compounds as carriers. The latter compounds were labelled with Te^{127}. Quantitative analysis of the chromatograms was carried out by the β - activity of Te^{127} and by the α-activity of Po. The chromatographic procedure is described in some detail. $(\alpha-C_{10}H_7)_2Po$

Card 1/2

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

Study of chemical changes ...

$(\alpha\text{-}C_{10}H_7)_2PoCl_2$, and $(\alpha\text{-}C_{10}H_7)_3PoCl$ were formed; these compounds are new. A small amount of inorganic Po, (2 - 6 %), was also found. Mechanism of chemical changes initiated by β - disintegration of RaE is discussed. The most important processes are those which give rise to singly charged primary molecular ions, the structure of which depends on many factors. There are 4 figures and 5 tables.

SUBMITTED: February 26, 1962

Card 2/2

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

MURIN, A.N.; NEFEDOV, V.D.; KIRIN, I.S.; GRACHEV, S.A.; GUSEV, Yu.K.; SAYKOV, Yu.P.

Formation of oxygen compounds of xenon during the β-decay of ^{131}I in potassium periodate. Radiokhimiia 7 no.5:631-632 '65.

(MIRA 18:10)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

NEFEDOV, V.D.; ZHURAVLEV, V.Ye.; TOROPOVA, M.A.; GRACHEV, S.A.; LEVCHENKO, A.V.

Synthesis of some p-tolyl derivatives of polonium. Zhur. ob. khim. 35 no.8:1436-1440 Ag '65. (MIRA 18:8)

1. Leningradskiy gosudarstvennyy universitet.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

MURIN, A.N.; KIRIN, I.S.; NEFEDOV, V.D.; GRACHEV, S.A.; GUSEV, Yu.K.

Chemical changes in the β-decay of iodine isotopes as a method of synthesizing xenon compounds. Dokl. AN SSSR 161 no.3:611-613 Mr '65. (MIRA 18:4)

1. Fiziko-tekhnicheskiy institut im. A.F.Ioffe AN SSSR. Submitted September 21, 1964.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

L 17371-66 EWT(m)/EWP(t) DIAAP/IJP(c) JD

ACC NR: AP6004509 SOURCE CODE: UR/0186/65/007/005/0631/0632

AUTHOR: Murin, A. N.; Nefedov, V. D.; Kirin, I. S.; Grachev, S. A.; Gusev, Yu. K.; Saykov, Yu. P.

ORG: none

TITLE: Formation of oxygen-xenon compounds during β-radiation of I^{133} incorporated in potassium periodide

SOURCE: Radiokhimiya, v. 7, no. 5, 1965, 631-632

TOPIC TAGS: xenon, oxide formation, beta radiation, iodine, radioisotope

ABSTRACT: Xenon oxides (XeO_4 and XEO_3) were prepared by β-radiation of potassium periodide containing radioactive J^{133} isotope according to the following scheme:

$$[^{133}JO_4]^{1-} \xrightarrow{\beta} [^{133}XeO_4]^{0} \begin{cases} \rightarrow {}^{133}Xe \\ \rightarrow {}^{133}XeO_3 \\ \rightarrow {}^{133}XeO_4 \end{cases}$$

The preparation procedure was as follows: helium gas was bubbled for 30 minutes at

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L 17371-66
ACC NR: AP6004509

a rate of 26 ml/min through a solution of $KJ^{133}O_4$ and KJ^{133} in 0.002 normal H_2SO_4 to remove free xenon. The elemental iodine was removed from the gas stream by passing helium through a KOH-absorber. The xenon oxides were trapped on AG-5 activated carbon at liquid nitrogen temperature. The quantity of trapped xenon-133 was measured using an AI-100-1 analyzer. It was found that XeO_4 is unstable in acidic media and decomposes to XEO_3. [Editor's note: J is the Russian periodic symbol for iodine.]

SUB CODE: 07/ SUBM DATE: 08Jan65/ ORIG REF: 002/ OTH REF: 005

Card 2/2 nst

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

NEFEDOV, V.D.; GRACHEVA, L.M.; GRACHEV, S.A.; PETROV, L.N.

Chemical changes during beta-decay of RaE contained in p-phenethyl derivatives as a method of synthesis of analogous derivatives of polonium. Radiokhimiia 7 no.6:741-744 '65. (MIRA 19:1)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

MURIN, A.N.; NEFEDOV, V.D.; KIRIN, I.S.; GRACHEV, S.A.; GUSEV, Yu.K.; SHAPKIN, G.N.

Beta decay of bromine isotopes as a possible method of synthesizing krypton compounds. Zhur.ob.khim. 35 no.12:2137-2140 D '65. (MIRA 19:1)

1. Fiziko-tekhnicheskiy institut imeni A.F.Ioffe AN SSSR.
Submitted February 25, 1965.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

L 29279-66 EWP(j)/EWT(m)/T RM

ACC NR: AP6019319 SOURCE CODE: UR/0079/65/035/008/1436/1440

AUTHOR: Nefedov, V. D.; Zhuravlev, V. Ye.; Toropova, M. A.; Grachev, S. A.; Levchenko, A. V. 50 B

ORG: Leningrad State University (Leningradskiy gosudarstvennyy universitet)

TITLE: Synthesis of some p-tolyl derivatives of polonium

SOURCE: Zhurnal obshchey khimii, v. 35, no. 8, 1965, 1436-1440

TOPIC TAGS: organic synthetic process, polonium compound, bismuth, tellurium, chemical precipitation, chromatography, bromination, iodinated organic compound, organometallic compound, radioisotope, radiation chemistry

ABSTRACT: Po^{210} was separated from irradiated Bi by coprecipitation with Te from an HCl solution, using $SnCl_2$. A mixture of $TeCl_4$ and $PoCl_4$ was then prepared by chlorination of elemental Te containing Te^{127} and Po^{210}. Starting with $Te(Po)Cl_4$, p-tolyl derivatives of Po were prepared together with the analogous derivatives of Te by conventional chemical methods. $Te(Po)(p\text{-}MeC_6H_4)_2$, the initial organoelemental compound from which $Po(p\text{-}MeC_6H_4)_2Hal_2$ (Hal = F, Cl, Br, I), $Po(p\text{-}MeC_6H_4)_3Hal$(Hal = Cl, I), and $Po(p\text{-}MeC_6H_4)_3Cl.HgCl_2$ were prepared, could not be separated into

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the Po and Te derivatives by chromatography, because the R_f values of the two compounds were practically the same. For the separation of the other derivatives, distribution chromatography on paper was applied, using suitable mixtures of solvents. The alpha-activity of Po^{210} and the beta and gamma-activities of Te^{127} were then determined on the chromatograms. Bromination and iodination of $Te(Po)(p\text{-}MeC_6H_4)_2$ to prepare the dihalides $Te(Po)(p\text{-}MeC_6H_4)Hal_2$ was carried out by means of $Te(p\text{-}MeC_6H_4)_2Hal$ (Hal = Br, I) in a benzene solution; treatment of $Te(Po)(p\text{-}MeC_6H_4)_2$ with Br_2 or I_2 resulted in an impoverishment of crystals of the mixed compound in the organometallic derivative of Po because of the low tendency of the latter to crystallize. To convert $Te(Po)(p\text{-}MeC_6H_4)_2$ to the difluoride, $Bi(p\text{-}MeC_6H_4)_3F_2$ was applied in an analogous reaction. The R_f value of every Po and Te compound prepared was determined for the solvents used in the chromatographic analysis. Orig. art. has: 5 figures, 3 formulas, and 1 table. [JPRS]

SUB CODE: 07, 18 / SUBM DATE: 1May64 / ORIG REF: 002 / OTH REF: 002

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

SVOBODA, Lyudvik [Svoboda, Ludvik], general armii; GRACHEV, S.I. [translator]; PETROV, F.P.[translator]; ARTEMOV, A.P., red.; SRIBNIS, N.V., tekhn. red.

[From Buzuluk to Prague] Ot Buzuluka do Pragi. Moskva, Voenizdat, 1963. 405 p. Translated from the Czech.(MIRA 16:6)
(Czechoslovakia—World War, 1939-1945)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

CHUGAYEV, Yuriy Gennadiyevich; PLISKO, Valeriy Antonovich; BAVAROV, V.A.; BOL'SHOV, V.M.; GRACHEV, S.N.; PASHKOV, A.A.; KACHKO, A.I.; PLATONOV, S.A., polkovnik, red.; MEDNIKOVA, A.N., tekhn. red.

[Electronic digital computers]Elektronnye tsifrovye vychislitel'nye mashiny. Moskva, Voenizdat, 1962. 405 p. (MIRA 16:1)
(Electronic digital computers)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

CHUGAYEV, Yuriy Gennadiyevich; PLISKO, Valeriy Antonovich; BAVAROV, S.F.; BOL'SHOV, V.M.; GRACHEV, S.N.; PASHKOV, A.A.; KACHKO, A.I.; PLATONOV, S.A., polkovnik, red.; MEDNIKOVA, A.N., tekhn. red.

[Electronic digital computers]Elektronnye tsifrovye vychislitel'nye mashiny. Moskva, Voenizdat, 1962. 405 p. (MIRA 16:2)
(Electronic digital computers)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

SOV/124-58-10-11895

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 10, p 159 (USSR)

AUTHORS: Zubov, V. Ya., Grachev, S. V.

TITLE: Relaxation Processes in a Steel Spring Strip (Relaksatsiya stal'noy pruzhinnoy lenty)

PERIODICAL: V sb.: Vopr. proyektir., izgotovleniya i sluzhby pruzhin. Moscow—Leningrad, Mashgiz, 1956, pp 216-229

ABSTRACT: The effect of heat treatment on relaxation processes at temperatures ranging from 100 to 600°C was studied on a spring strip with a cross section of 0.32x6.75 mm made of silicon steel EI142. Portions of the strip bent into a circular shape were inserted into steel rings of various diameters (the stresses in the strip did not exceed the elastic limit). After soaking at a certain temperature followed by a period of cooling, the strips were removed. The magnitude of "relieved" stresses was determined from the curvature of the strip. The intensity of stress reduction increased with increasing temperatures and increased with increasing magnitude of the initial stress. At a temperature of 550°C, the stresses were relieved completely by the mechanism of relaxation.

Card 1/2

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

SOV/124-58-10-11895

Relaxation Processes in a Steel Spring Strip

Minimal relaxation stability was exhibited by quench-hardened steel. The greatest relaxation stability at temperatures ranging from 150 to 350° was observed in quenched steel which had been tempered at 450°. Alloying of spring silicon steel with Mo and W tends to increase the relaxation stability both at room temperature and at elevated temperatures.

M. Ya. Shashin

Card 2/2

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, S.V.

KAGAN, Ya.A., kandidat tekhnicheskikh nauk; OSTROVSKIY, Ya.M., inzhener; GERZHOY, I.P., inzhener; GRACHEV, S.V., inzhener.

Improving the screw conveyor pulverized coal feeder and coal feeding unit for the MEI--Mosenergo system. Energomashinostroenie 3 no.6:24-28 Je '57. (MIRA 10:7)
(Boilers)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

SOV/163-58-2-46/46

AUTHORS: Zubov, V. Ya., Grachev, S. V., Grigor'yev, A. F.

TITLE: The Influence of the Normal and the Isothermal Treatment on the Relaxation Stability of Spring Steel (Vliyaniye obychnoy i izotermicheskoy obrabotki na relaksatsionnuyu stoykost' pruzhinnoy stali)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, Nr 2, pp. 249-255 (USSR)

ABSTRACT: The relaxation stability of metals and alloys is to a great extent determined by their structure. In the present paper comparative investigations of the relaxation stability of spring steel of the types [illegible]142 and U9A under normal and isothermal treatment are described. The effect of the residual austenite on the relaxation process was discussed. The relaxation stability of spring steel treated the normal and the isothermal way depends on the conditions of relaxation. At low relaxation temperatures of the steel with martensite structure the relaxation stability is greater than in the case of a steel having a structure as in the complete decomposition of austenite. The change of the relaxation stability of the isothermally treated

Card 1/3

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

The Influence of the Normal and the Isothermal Treatment on the Relaxation Stability of Spring Steel

steel does not take a monotonous course at low temperatures. When the temperature of treatment is increased the relaxation stability first increases but then decreases again. Steel isothermally treated at high temperatures has the greatest relaxation stability at an increase in temperature. The residual austenite decreases the relaxation stability of the steel at low as well as at high relaxation temperatures, since at low temperatures a low resistance to plastic deformation exists, and at high temperatures a decomposition of the austenite takes place during the relaxation process. From this may be concluded that in the isothermal decomposition the presence of the residual austenite leads to a considerable decrease of the relaxation stability of the steel. There are 4 figures, 4 tables, and 9 references, 8 of which are Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnical Institute)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, S. V.

AUTHORS: Zubov, V. Ya. and Grachev, S. V. 129-58-5-6/17

TITLE: Resistance to Relaxation of Spring Strip at Room Temperature (Soprotivleniye relaksatsii pruzhinnoy lenty pri komnatnoy temperature)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 5, pp 20-23 (USSR)

ABSTRACT: A considerable number of instruments and mechanisms actuated by means of springs usually operate at temperatures approaching room temperature. The correctness of their readings and their reliability in operation depends mainly on the quality of the springs and one important property of the springs is their relaxation stability. A number of papers have been published on the relaxation stability of spring steels at elevated temperatures (Refs.1-4). In this paper the authors investigate the relaxation properties of spring strip of various grades of steel at room temperature under conditions of high bending stresses for which a method was used which was developed for investigating the relaxation stability of thin steel strip described in an earlier paper of one of the authors (Ref.5). The strip specimens are

Card 1/3 "charged" into rings, the diameter of which is so chosen

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Resistance to Relaxation of Spring Strip at Room Temperature

that the stresses do not exceed the bending strength of the material. There will be a gradual relaxation of the stresses of the strip in the rings. On removing the strip and determining the residual deformation as the direct elastic after effect it is possible to evaluate the relaxation by means of the following formula:

$$\sigma_r = E \frac{h(\rho_p - \rho_o)}{2 \cdot \rho_o \cdot \rho_p}$$

where h - the thickness of the strip;
ρ_o - the initial curvature radius of the strip;
ρ_p - curvature radius of the strip after relaxation.

The investigations were carried out using 0.32 x 6.75 mm specimens of the steels EI142, U10A and an experimental spring steel EI722 of the following composition: 0.71% C, 2.49% Si, 0.51% Mn, 0.62% Cr, 0.6% W, 0.2% Mo, 0.018% P and 0.02% S. The conditions of heat treatment are given. On the basis of the obtained results it is concluded that at room temperature the relaxation stability of the experimental steel, which has a higher Si content

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and is additionally alloyed with tungsten and molybdenum, is considerably higher than for the steels EI142 and U10A, the latter having the lowest relaxation stability. Hardened, non-tempered, steel of the three investigated grades showed a reduced relaxation stability at room temperature. This is attributed to the partial process of decomposition of martensite as a result of the long duration effect of the stresses.
There are 2 figures and 6 Soviet references.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M.Kirova (Ural Polytechnical Institute imeni S. M. Kirov)

AVAILABLE: Library of Congress.

Card 3/3 1. Springs-Stability-Test results

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

SOV/126-6-6-18/25

AUTHORS: Zubov, V.Ya. and Grachev, S.V.

TITLE: Relaxation Stability of Spring Steel as a Function of the Degree of Stability of the Structure (Relaksatsionnaya stoykost' pruzhinnoy stali v zavisimosti ot stepeni stabil'nosti struktury)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 6, pp 1088 - 1094 (USSR)

ABSTRACT: It was established that the relaxation stability of hardened and softened steel changes non-monotonically and that there is a certain interval of tempering temperatures for which the relaxation stability of the steel is at a maximum. The intensity of relaxation processes and the degree of development of such processes are influenced strongly by transformations in the investigated material. These transformations may be due to decomposition of the solid solution, separation of one or another phase component from the solid solution, coagulation, recrystallisation, etc. This aspect of the process of relaxation has not been adequately studied. Certain data can be found from work relating to creep, the mechanism of which is very similar to that of relaxation but even there the

Card1/4

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

Relaxation Stability of Spring Steel as a Function of the Degree of Stability of the Structure

available information is inadequate. The authors studied the influence of the degree of stability of the structure of spring steel strip on its relaxation stability under various temperature conditions. They investigated the influence of the temperature and the tempering time on the relaxation stability of spring steel. For the investigations, a standard silicon steel, EI142, was used and also an experimental 2.5% Si steel of the following composition: C 0.71%, Si 2.49%, Mn 0.51%, Cr 0.62%, Ni 1.17%, Mo 0.20%, W 0.6%, S 0.02% and P 0.018%. Strips of both steels were first hardened. For obtaining differing degrees of structural stability, the hardened strip was tempered at various temperatures and heating durations. The influence of each of these factors on the relaxation stability was investigated separately. The specimens of both steels were tempered at 150, 250, 350, 450, 550 and 650 °C for durations of 10 min. The elasticity limit of the tempered-strip specimens was tested according to a method described in earlier work of one of the authors (Ref 9). The test results are entered

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

Relaxation Stability of Spring Steel as a Function of the Degree of Stability of the Structure

in Table 1, p 1089. The results of the relaxation tests are described and entered in graphs, Figures 2-9. It was found that an increase in the stability of the structure does not necessarily lead to a monotonic increase in the relaxation stability. Depending on the conditions of relaxation and the structural state of the steel, an increase in the stability of the structure may bring about a drop in the resistance of the material against relaxation. The role of the slip mechanism of relaxation will be the greater the higher the structural stability of the steel and the higher the initial stresses. The validity of a general relation can be discerned as regards the characteristic of the relaxation curves of two differing grades of spring steel. The relaxation stability of the experimental steel (denoted by EI722 in the paper) is higher than the relaxation stability of the steel EI142 for all the investigated preliminary tempering temperatures and relaxation temperatures.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

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SOV/126-6-6-18/25

Relaxation Stability of Spring Steel as a Function of the Degree of Stability of the Structure

There are 9 figures, 2 tables and 9 references, all of which are Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut imeni S.M.Kirova (Urals Polytechnical Institute imeni S.M. Kirov)

SUBMITTED: July 6, 1956

Card 4/4

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, S.V.; ZUBOV, V.Ya.

Effect of structural stability on the elastic aftereffect.
Izv. vys. ucheb. zav.; chern. met. no.2:68-72 '60. (MIRA 15:5)

1. Ural'skiy politekhnicheskiy institut.
(Steel--Hardening)
(Phase rule and equilibrium)
(Strains and stresses)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, S.V.; ZUBOV, V.Ya.

Plastic and elastic aftereffect in spring bands. Izv.vys.ucheb. zav.; chern.met. no.3:59-64 '60. (MIRA 13:4)

1. Ural'skiy politekhnicheskiy institut.
(Springs(Mechanism)) (Strains and stresses)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

ZUBOV, V.Ya.; GRACHEV, S.V.; PESIN, Ya.A.

Stress relaxation during martensite transformations of residual austenite. Izv.vys.ucheb.zav.; chern.met. no.5:115-120 '60. (MIRA 13:6)

1. Ural'skiy politekhnicheskiy institut.
(Steel--Metallography) (Strains and stresses)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

ZUBOV, V.Ya., doktor tekhn.nauk prof.; GRACHEV, S.V., inzh.

Improving the quality of steel spring strips. Stal' 20 no.9:849-851 S '60. (MIRA 13:9)

1. Ural'skiy politekhnicheskiy institut.
(Steel--Heat treatment) (Springs (Mechanism)--Testing)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

ZUBOV, V. Ya.; GRACHEV, S.V.; TSEYTLIN, A.M.

Stress relaxation during the tempering of high-speed steel.
Fiz. met. metalloved 11 no.3:465-466 Mr '61. (MIRA 14:3)

1. Ural'skiy politekhnicheskiy institut im. S. M. Kirova.
(Tool steel—Heat treatment)
(Strains and stresses)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

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27929 S/133/61/000/006/014/017
A054/A129

AUTHORS: Zubov, V. Ya., Doctor of Technical Sciences, Sokolov, N. V., Candidate of Technical Sciences, Krasil'nikov, L. A., Grachev, S. V., Engineers

TITLE: Deformation of metastable austenite and strength of steel strip

PERIODICAL: Stal', 21 no. 6, 1961, 549-551

TEXT: As a result of extensive research new ways were found to increase the strength of steel. Based on P. P. Anosov's studies, V. D. Sadovskiy (Ref.2: L. V. Smirnov, Ye. N. Sokolkov and V. D. Sadovskiy: Proceedings of the Institute of the Physics of Metals UFAN, 1956, no. 18, 35-36) put forward the suggestion that the excellent mechanical properties of Damascus blades were due to a combination of forging and hardening. With this theory in mind and the knowledge that the strength of alloyed steels could be raised by plastic deformation of austenite in supercooled condition, a so-called "thermo-mechanical" treatment was established for 65Г (65G) and ЭИ142 (EI142) type 2-mm thick spring wires. In the tests the wire was deformed (flattened) after heating until austenite formation and after cooling in tin bath from 380-400°C (Fig. 2). The strip (0.7 x 2.63 mm) processed by the new method in the laboratory was annealed at various

Card 1/3

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temperatures. Next the strength limit, the quantity of residual austenite and the microstructure of the strips under hardened condition were examined. It was found that by tempering at a temperature of up to 350°C with a holding time of 5 minutes the strength limit of EI142 steel increased to 300 kg/mm^2. Maximum strength for 65G steel (280 kg/mm^2) was obtained at a lower annealing temperature (300°C, holding time: 5 minutes). The transformation of austenite in 65G steel during annealing takes place more quickly than in EI142 steel. At 300°C and a holding time of 5 minutes the amount of residual austenite is no more than 10% in 65G steel, while at 360°C and a holding time of 1 minute nearly the entire quantity of austenite will be transformed. The microstructure of the test steels after flattening (with supercooled austenite and upon cooling at room temperature) displays elongated, dark grains with curved sliding surfaces in dense arrangement. These are evidently the products of the second stage of austenite transformation, which develops under the effect of plastic deformation on the disintegration of supercooled austenite. The tests were carried out with the cooperation of Engineer Yu. P. Surkov and Technician A. G. Lysenko. There are 5 figures and 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc.

ASSOCIATION: Beloretskiy staleprovolochnyy zavod (Beloretsk Steel-Wire Plant)
Ural'skiy politekhnicheskiy institut (Ural Polytechnical Institute)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

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33461

S/129/62/000/001/004/011
E073/E483

1.1700 1454, 1045

AUTHORS: Zubov, V.Ya., Doctor of Technical Sciences, Grachev, S.V., Surkov, Yu.P., Engineers

TITLE: Influence of thermomechanical treatment on the strength of steel wire

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, no.1, 1962, 20-22

TEXT: The authors studied the possibility of using thermomechanical treatment in the drawing of carbon- and low-alloy steel wire (L.A.Krasil'nikov and A.G.Lysenko participated in the experiments). The chemical compositions (%) of the steels investigated are given as follows:

	C	Mn	Si	Cr	Ni	Cu	P	S
У7А (U7A)	0.71	0.27	0.21	0.08	0.10	0.11	0.020	0.025
У10А (U10A)	1.01	0.20	0.18	0.12	0.12	0.20	0.019	0.006
65Г (65G)	0.66	0.98	0.23	0.09	0.20	0.10	0.019	0.023
ЭИ 142 (EI142)	0.66	0.50	1.67	0.33	0.10	-	0.009	0.017

The initial wire diameters were 1.95 and 2 mm. The wire was heated for the drawing operation to 920 to 940°C by passing an

Card 1/3

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

Influence of thermomechanical ...

electric current through it and cooled in a lead bath to 320 - 350°C. The speed of movement of the wire was 10 m/min. The wire was deformed in a single pass (short incubation period) by 5 to 32%, using a soap-graphite lubricant. The final cooling after drawing was in air. After this, thermomechanical treatment specimens of the wire were tempered under laboratory conditions at 100 to 500°C with a holding time of 1.5 min. The strength of the wire drawn whilst the austenite was in the super-cooled state was very high. It was highest for the steel EI142, i.e. 306 kg/mm^2 (32% reduction and tempering at 350°C for 3 min). Further experiments were carried out exclusively on this material. The hardness after thermomechanical treatment was higher by about 4 H_{RC} units than for the same material quenched in the ordinary way. In addition, hardness of thermomechanically-treated material decreased more slowly with increasing tempering temperature than that of the same material after step-wise quenching. These differences were attributed to smaller grain-size of martensite and presence of strain-hardened austenite in thermomechanically treated steel. Even after

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Influence of thermomechanical ... S/129/62/000/001/004/011
E073/E483

3 minutes tempering at relatively high temperatures (450 to 500°C), hardness of thermomechanically treated steel was practically equal to that of the same material after the conventional hardening treatment. The strength of the wire increased with increasing reduction but there was a drop in strength after reductions not exceeding 6 to 8%. If reductions of the order of 30% are used (followed by tempering for 1 min at temperatures not exceeding 350°C) it is possible to produce thermomechanically treated wire with a strength of the order of 300 kg/mm^2. There are 5 figures, 1 table and 1 Soviet-bloc reference.

ASSOCIATION: Ural'skiy politekhnicheskiy institut
(Ural Polytechnical Institute)

Card 3/3

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

ZUBOV, V.Ya., doktor tekhn.nauk, prof.; GRACHEV, S.V., inzh.

Effect of preliminary plastic deformation on the properties of spring bands following heat treatment. Metalloved.i term.obr.met. no.2:46-47 F '62. (MIRA 15:3)

1. Ural'skiy politekhnicheskiy institut.
(Steel—Heat treatment)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

ZUBOV, V. Ya.; GRACHEV, S. V.

Phenomena of anomalous stress relaxation in beryllium bronze.
Fiz. met. i metalloved. 14 no.4:602-607 O '62. (MIRA 15:10)

1. Ural'skiy politekhnicheskiy institut imeni S. M. Kirova.

(Beryllium bronze—Testing)
(Strains and stresses)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

L 20773-65 EWT(m)/EWA(d)/T/EWP(t)/EWP(b) ASD(m)-3 MJW/JD/JXT(CZ)

ACCESSION NR: AR4044542 S/0277/64/000/006/0012/0012

SOURCE: Ref. zh. Mashinostr. mat., konstr. i raschet detal. mash. Otd. vy*p, Abs. 6.48.77

AUTHOR: Grachev, S. V., Zubov, V. Ya.

TITLE: Stress relaxation in austenitic steels

CITED SOURCE: Sb. Relaksats. yavleniya v met. i splavakh. M., Metallurgizdat, 1963, 309-312

TOPIC TAGS: austenitic steel, relaxational stability, stress relaxation, tempering temperature, structural metastability, steel mechanical property/steel 4Kh18N10S3, steel 4Kh18N15S2V2M, steel 2Kh18N9, steel E1481 *

TRANSLATION: The study concerned the relaxational stability (RS) of austenitic steels 4Kh18N10S3 and 4Kh18N15S2V2M (σ_0 = 50 kg/mm^2) when subjected to plastic deformation and tempered for 1 hr. in the 200-600C range. Stress relaxation (SR) tests were carried out on strip (0.36 x 4.5 mm cross-section) or wire (diam. = 0.5 mm) samples. Change in E value during the heating process, predetermined dynamically, was considered when calculating stresses. The dependence of the extent of SR was plotted against the tempering

Card 1/2

* [E1481 should be EI 481.

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ACCESSION NR: AR4044542

temperature (TT) at which the steel was preliminarily treated. The RS of steel increased as TT rose to levels of 400 - 500C. A similar TT corresponds to the peak tensile RS [illegible] TT and RS [illegible] at low temperatures or work-hardened. During [illegible] temperatures supplemental processes which stabilize [illegible] to SR. The [illegible] such processes is the greater the wider the [illegible] between the SR [illegible] and preliminary TT. L. Grodzyenko

SUB CODE: MM ENCL: 00

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Card

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, S.V.; ZUBOV, V.Ya.

Stress relaxation in hardened steel in the first stage of tempering.
Fiz. met. i metalloved. 15 no.6:854-859 Je '63. (MIRA 16:7)

1. Ural'skiy politekhnicheskiy institut imeni Kirova.
(Steel—Heat treatment)
(Strains and stresses)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

ZUBOV, Vitaliy Yakovlevich; GRACHEV, Sergey Vladimirovich

[Structure and properties of steel spring bands] Struktura i svoistva stal'noi pruzhinnoi lenty. Moskva, Izd-vo "Metallurgiia," 1964. 223 p. (MIRA 17:7)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

ACC NR: AP6[illegible]/EWP(w)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(b) IJP(c)

AUTHOR: Grachev, S. V.; Zubov, V. Ya.

TITLE: Effect of structure stability on stress relaxation in alloys

SOURCE: Fizika metallov i metallovedeniye, v. 18, no. 6, 1964, 909-914

TOPIC TAGS: stress relief mechanism, 6A alloy, E1181 alloy, E1722 alloy, [illegible] temperature, plastic deformation, metastable structure, shear deformation

ABSTRACT: The mechanism of stress relief in alloys with metastable structures was examined. Stress-relief-temper temperature curves were constructed for [illegible] and E1722 steels subjected to temperature [illegible] in the 100-600C range for 30 minutes. The position of the minima depended on the relaxation [illegible] and type of steel. [illegible] shearing components of plastic deformation was developed for the appearance of [illegible] maxima. The general level of relief resistance was 100-150 degrees higher [illegible] with Mo, W, Cr and Si [illegible] than in steels which

Card 1/2

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

L 36626-65
ACCESSION NR: AP5002349

do not form carbides had little effect on the final decomposition temperature of martensite and had little effect on the position of the relaxation minimum on tempering. They did however, as deduced from data on 70 and 70K4 steels, increase the relief resistance slightly due to retardation of the second stage of tempering the martensite of the hardened steel. The carbide-forming elements (Mo, W) retarded the second and third stages of martensite tempering, increasing the resistance of the steel to shear deformation. At higher temperatures the relief of stresses due to structural transformation increased as the alloying in the steel increased. However the total plastic deformation upon relief in alloyed steels was less than in the unalloyed. In cold hardened steel, the effect of tempering on changes in the relief components was the same as in hardened [illegible] tempering only in magnitude of the structural [illegible] effect of the stress relief of the structure of metastable alloys was believed less pronounced than the tempering temperature. Orig. art. has: 5 figures.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova (Ural Polytechnical Institute)

SUBMITTED: 02Mar64 ENCL: 00 SUB CODE: MM

NR REF SOV: 005 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

BASKAKOV, A.P.; ZUBOV, V.Ya.; GRACHEV, S.V.; VERSHININA, V.S.

Patenting wire in a fluidized bed. Stal' 24 no.7:660-663 Jl '64. (MIRA 18:1)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

ZUBOV, V.Ya.; BASKAKOV, A.P.; GRACHEV, S.V.; ZAVAROV, A.S.; MALIKOV, G.K.

Characteristics of wire patenting in a fluidized bed. Izv. vys. ucheb. zav.; chern. met. 8 no.10:116-119 '65.
(MIRA 18:9)

1. Ural'skiy politekhnicheskiy institut.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

ZUBOV, V.Ya.; GRACHEV, S.V.; RYBAKOVA, M.F.; KIR'YANOVA, N.P.

"Hereditary" properties of thermomechanically treated steel. Fiz. met. i metalloved. 20 no.3:424-427 S '65. (MIRA 18:11)

1. Ural'skiy politekhnicheskiy institut imeni S.M.Kirova.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

ZUBOV, V.Ya.; BASKAKOV, A.P.; GRACHEV, S.V.; MALIKOV, G.K.; ZAVAROV, A.S.

Patenting in a fluidized bed with pilot plant equipment. Stal' 25 no.7:664-665 Jl '65. (MIRA 18:7)

1. Ural'skiy politekhnicheskiy institut.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

L 44401-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AP6023640 SOURCE CODE: UR/0149/66/000/002/0129/0134

AUTHOR: Zubov, V. Ya.; Grachev, S. V.; Kirillov, Yu. L.; Spiridonova, L. M.; Norkina, E. B.

ORG: Department of Metallurgy, Ural Polytechnic Institute (Kafedra metallovedeniya Ural'skiy politekhnicheskiy institut)

TITLE: Study of mechanical properties and relaxation stability of Cu-Ti alloys

SOURCE: IVUZ. Tsvetnaya metallurgiya, no. 2, 1966, 129-134

TOPIC TAGS: copper containing alloy, titanium containing alloy, chromium containing alloy, mechanical property, tensile strength, elastic modulus, stress relaxation, temperature dependence

ABSTRACT: The effect of certain factors of stress relaxation and other mechanical properties of five Cu-Ti alloys was studied. The alloys had Ti contents ranging from 1.10 to 5.50%; two of the alloys had Cr contents of 0.52 and 1.00%. After vacuum melting and remelting, 60 kg ingots were reduced to strip (6 mm wide by 0.4 and 0.25 mm thick) which was heated to 860°C for 1 hr, quenched into water and cold worked 20, 40, 60 and 80%. Aging was carried out at 300, 350, 400, 450 and 500°C for 1 to 5 hrs. The best strengths were obtained by aging at optimal temperatures for 2 hrs. Tensile strengths and relative elongations are given as functions of aging temperature for all alloys in

UDC: 669.35'295:669.018.2

Card 1/2

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ACC NR: AP6023640

4

the quenched and quenched + 60 % deformed condition. The highest strength (118 kg/mm^2) was for 5.50% Ti + 0.52% Cr additions. Elastic moduli and electroconductivities for all alloys after quenching + 40% deformation are given. Maximum moduli were observed at aging temperatures of 400-450°C and for all alloys the limit was 60-70 kg/mm^2. The best heat treatment, resulting in optimum combinations of strength and ductility, was obtained after deforming the quenched alloys 40-60% and aging at 400-450°C. These properties are considered to be ideal for replacing Cu-Be alloys used in springs. Alloying of Cu with Ti and Cr increased the electrical conductivity after quenching, however, this dropped considerably upon aging as a result of second phase decomposition. The elastic modulus, determined by the dynamic method, is given as a function of aging temperature and compared with beryllium bronze BrB2. This modulus rose sharpest for BrB2 indicating a faster decomposition of the solid solution. By increasing the Ti content the dynamic modulus decreased, probably as a result of a lowered interatomic bonding. Relaxation tests (relative relaxation stability as a function of time) were run at 200 and 400°C and the results were compared to BrB2. The Cu-Ti alloys had 4-15 times the relaxation stability at 400°C of BrB2. Again the best alloy was the 5.50% Ti + 0.52% Cr. Orig. art. has: 5 figures, 1 table, 1 formula.

SUB CODE: 11,20/ SUBM DATE: 06Oct64/ ORIG REF: 006

Card 2/2 egh

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

L 41622-66 EWT(m)/EWP(k)/EWP(w)/T/EWP(t)/ETI IJP(e) JD
ACC NR: AP6013359 (A) SOURCE CODE: UR/0370/66/000/002/0076/0084

AUTHOR: Zubov, V. Ya. (Sverdlovsk); Baskakov, A. P. (Sverdlovsk); Grachev, S. V. (Sverdlovsk); Zavarov, A. S. (Sverdlovsk); Antifeyev, V. A. (Sverdlovsk)

ORG: none

TITLE: Patenting of wire in a fluidized bed

SOURCE: AN SSSR. Izvestiya. Metally, no. 2, 1966, 76-84

TOPIC TAGS: ~~fluidized bed~~, patenting, wire, ~~high~~ carbon steel, metal heat treatment

ABSTRACT: The possibility of constructing an integrated unit for patenting wire in which the heating and cooling of the wire are carried out in a fluidized bed of fine-grained material was studied on specimens of U7A, U8A, U9A, and EI-142 steels. The use of a fluidized bed made it possible to increase the rate of the patenting process by a factor of up to 6, or at the same rate to correspondingly reduce the length of the heating systems as compared to the existing fuel-oil and electric furnaces. By burning gas in a fluidized bed where oxygen is deficient, a nonoxidizing atmosphere can be created, so that the decarburization and scaling on the wire surface are eliminated; in addition, the patenting can be performed at high temperatures under these conditions, and thus the strength characteristics of the patented wire and hence the mechanical properties of the drawn wire can be markedly improved. High-temperature heating during patenting increases the stability of austenite, and hence, leads to a

UDC: 621.785

Card 1/2

L 41622-66
ACC NR: AP6013359

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

greater supercooling for the same temperature of the [illegible] compared to the usual heating to 920°. This makes it possible to patent wire with large cross sections (8-10 mm) in a fluidized bed. Patenting of high-carbon steel (U12A) in this manner produced drawn wire with a much greater tensile strength than that obtained in conventionally patented steels (U7A, U8A, U9A). Orig. art. has: 5 figures and 7 tables.

SUB CODE: 11/ SUBM DATE: 07Oct64/ ORIG REF: 002

Card 2/2 hs

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

L 46284-66 EWT(m)/EWP(w)/T/EWP(k)/EWP(t)/ETI IJP(c) JD/HW

ACC NR: AP5025328 SOURCE CODE: UR/0126/65/020/003/0424/0427

AUTHOR: Zubov, V. Ya.; Grachev, S. V.; Rybakova, M. F.; Kir'yanova, N. P.

ORG: Ural Polytechnic Institute im. S. M. Kirov (Ural'skiy politekhnicheskiy institut)

TITLE: Problems of "heredity" of properties from thermomechanical treating of steel

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 3, 1965, 424-427

TOPIC TAGS: mechanical heat treatment, spring steel, metal property, annealing, tempering, durability, elasticity, hardness, toughness

ABSTRACT: The effect of additional tempering and annealing on thermomechanically treated samples of spring strip was studied and the secondary treatment was shown to eliminate the favorable effects of the thermomechanical process. Samples of 0.4 x 4mm EI142 and U7A steel strip were austenized at 900C, precooled at 320C, rolled, and additionally austenized at 860C and 7.2 m/min rate for approximately 30 sec, or at 860C in oil. Prior to the additional tempering some samples were annealed at 450—550C or at 300C. All samples, either after the primary thermomechanical treatment or after the additional heat treatment, were annealed 1—5 min at 200—500C and tested for strength, elasticity, toughness, and hardness. Samples, which had been tempered and annealed, but not mechanically treated, were similarly tested.

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Additional heat treating decreased the mechanical properties and the amount of residual austenite to the level of strips obtained by ordinary heat treating. Thus, no retention of favorable properties occurs in the additional tempering process, whereas some unfavorable properties are preserved, causing an increase in brittleness at low annealing temperatures. Orig. art. has: 4 figures and 1 table.

SUB CODE: 11/ SUBM DATE: 24Sep64 / ORIG REF: 009/ OTH REF: 001

Card 2/2

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GRACHEV, V., (Novo-Ladozhskiy Rayon, Leningradskya Oblast)

USSR/Electronics - Radiofication Dec 53

"Three Letters on Progress of the Radiofication Plan," A. Vesset (Velikiye Luki), V. Grachev (Novo-Ladozhskiy Rayon, Leningradskaya Oblast), P. Lunev (Sevastopol')

Radio, No 12, pp 8-9

Vesset discusses progress of radiofication in the Oktyabr'skiy and other rayons, and work of Fedulov, remarks that low power radio centers of the Min of Comm, esp the TUB-100, are overloaded and do not

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provide good service. Grachev blames poor planning for slow radiofication in Novo-Ladozhskiy Rayon. Lunev suggests that publications for radio amateurs lay more stress on radiofication problems.

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GRACHEV, V.

DANILENKO, A.; CHUMAKOV, N.; SERBINOVSKIY, G.; GRACHEV, V.; KHRAMUSHIN, A.; SOKOLOV, B.; BOL'SHAM, Ya.; TAYTS, A.; MEYFEL'D, M.; FRENKEL', S.; LYUDMIRSKIY, I.; NEBESNYY, A.; VESHNEVSKIY, S.; YERMILOV, A.; BROZGOL', M.; SOLOV'YEV, P.; KLYUYEV, S.; ROZENTAL', A.; SMIRNOV, V.; DOROFEYUK, A.

Solomon Mikhailovich Livshits; obituary. Prom energ. 11 no.12:34 D '56. (MIRA 10:1)

(Livshits, Solomon Mikhailovich, 1901-1956)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, V.

GRACHEV, V.

Our housing construction projects. Muk.-elev.prom.24 no.2:25-26 F '58. (MIRA 11:4)

1. Direktor mel'nitsy No.1, Gor'kiy.
(Labor and laboring classes--Dwellings)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, V.; SAFRONOV, A. (g.Bronnitsy)

Simplest intercommunication unit. Radio no.2:52 F '60. (MIRA 13:5)

(Intercommunication systems)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

ALEKSEYEV, N.; GRACHEV, V.; MALEYEVA, A.; MENZHINSKIY, G.; NOVOZHILOV, V.; SHARAGIN, A.; URVICHEV, P.

Over-all mechanization and electrification of the production. (MIRA 13:2)
Vop. ekon. no.3:100-110 Mr '60.
(Khomutovka District--Farm mechanization) (Rural electrification)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

YEVDOKIMOV, Yu.; GRACHEV, V.

Regulating wages in the communications industries. Sots.trud 4 no.7:46-50 Jl '60. (MIRA 13:8)
(Telecommunication)
(Wages)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, V.

Compiling technological charts on a collective flax farm. Tekh. v sel'khoz. 20 no.6:19-23 Je '60. (MIRA 13:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut ekonomiki sel'skogo khozyaystva.
(Bezhetsk District--Collective farms)

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GRACHEV, V.

Certificate of vocational training. Prof.-tekh. obr. 21 no.6:24 Je '64. (MIRA 17:9)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510013-9

GRACHEV, V.; RASHCHINSKIY, M.

Records of educational work. Prof.-tekh. obr. 22 no. 12:
27-28 S '65. (MIRA 19:1)

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